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09/710,959	11/14/2000	Sang Hee Cho	P-149	6176
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FLESHNER & KIM, LLP P.O. BOX 221200 CHANTILLY, VA 20153			FLETCHER, JAMES A	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/710,959

Applicant(s)

CHO, SANG HEE

Examiner

James A. Fletcher

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 8 July 2005 have been fully considered but they are not persuasive.

In re page 9, Applicant's Representative states: "column 4, lines 10-16 do not disclose or suggest comparing a system time clock with a presentation time stamp while increasing the system time clock in the case that a current mode is a normal decoding mode, as alleged by the Examiner."

The Examiner respectfully disagrees. Taking the reference as a whole, a disclosure of a comparison between two time values is clearly made. One of those values is a video presentation time stamp, and the other is a system time clock. These are the basis of the comparison made in the cited passage, and are disclosed in the paragraph preceding the cited passage. As far as the mode being "normal decoding," while this is not explicitly stated, it would have been remiss of Daum if the decoding had been in any way abnormal and he had not disclosed that fact. Further, it is clear from the context of the disclosure that playback is normal when the activities disclosed in the cited passages take place, meeting the recited language of claim 10.

In re pages 9 and 10, Applicant's Representative states: "these lines of Daum are directed to the clock input of the system time clock counter and thus they do not disclose or suggest storing a presentation time stamp of the currently input picture in the case that the current mode is a special decoding mode, and updating the stored

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presentation time stamp with a presentation time stamp of a decoded or a skipped picture, while performing the special decoded command, as alleged by the Examiner."

The Examiner again respectfully disagrees. Since the System Time Clock count remains unchanged, it is clearly stored, and since the CPU may update the count, the cited passage meets the recited language of claim 10.

In re page 10, Applicant's Representative states: "these lines of Daum...do not disclose or suggest replacing the system time clock with the previously stored presentation time stamp to perform a normal decoding, in the cast that the current mode is switched to a normal decoding mode after the special decoding mode has been performed, as alleged by the Examiner."

The Examiner respectfully disagrees for the reasons cited above.

Further in re page 10, Applicant's Representative states: "it is respectfully submitted that the Examiner's piecemeal selecting of various elements from the 'Background of the Invention' section of Daum and the discussion of the various embodiments of Daum to attempt to construct the features of the present invention is improper and clearly based on improper hindsight."

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a

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reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In re page 12 and claim 1, Applicant's Representative states: "Daum does not disclose or suggest such features of the invention. Further, the Examiner's piecemeal selecting of various elements from the 'Background of the Invention' section of Daum and the discussion of the various embodiments of Daum to attempt to construct the features of the present invention is improper and clearly based on improper hindsight."

The Examiner again respectfully disagrees for the reasons stated above.

In re page 12 and claim 5, Applicant's Representative states: "Lane fails to overcome the deficiencies of the combination of Daum and Watkinson, as Lane is merely cited for allegedly teaching display of frames in fast-forward trick play mode as soon as they are available.

While the examiner acknowledges the reason for the citation of Lane is to overcome an apparent deficiency in Daum and Watkinson, the citation is a valid and obvious combination, for the reasons cited in the office action.

In re page 13 and claims 12-14, Applicant's Representative states: "Watkinson fails to overcome the deficiencies of Daum, as Watkinson is merely cited for allegedly teaching a system clock frequency of 27 MHz and deriving a PTS for an image that does not have one."

While the Examiner acknowledges the reason for the citation of Watkinson is to overcome an apparent deficiency in Daum, the citation is a valid and obvious combination, for the reasons cited in the office action.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 10 and 12-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Daum (5,596,420).

Regarding claim 10, Daum discloses a method for controlling a display time point of an MPEG bit stream of a recording medium comprising:

- initializing a counter according to a system clock reference, and judging whether the current mode is a normal decoding mode, when a presentation time stamp in input (Col 3, lines 25-27 “The SCR was loaded into a counter, referred to as the system counter, and incremented by a 90 kilohertz system clock [SCLK]”);
- comparing a system time clock with the presentation time stamp while increasing the system time clock in the case that the current mode is a normal decoding mode (Col 4, lines 10-16 “A comparator coupled to the subtracter compares the difference value with a predetermined time drift threshold and outputs a video frame skip signal if the difference value exceeds the predetermined time drift threshold and the difference value is negative and outputs a video frame repeat signal if the difference value exceeds the predetermined time drift threshold and the difference value is positive. The

latency value is adjusted by adding a predetermined value to the latency value stored in the latency value register if a video frame repeat signal is generated by the comparator. The latency value is adjusted by subtracting a predetermined value from the latency value stored in the latency value register if a video frame skip signal is generated by the comparator.”),

- storing a presentation time stamp of the currently input picture in the case that the current mode is a special decoding mode, and updating the stored presentation time stamp with the presentation time stamp of a decoded or a skipped picture, while performing the special decoding (Col 22, lines 37 “When step control is activated, the clock input to STC counter may be interrupted and thus the output of STC counter may remain the start count received from CPU 820”); and
- replacing the system time cock with the previously stored presentation time stamp to perform a normal decoding, in the case that the current mode is switched to a normal decoding mode after the special decoding has been performed (Col 4, lines 10-16 “A comparator coupled to the subtracter compares the difference value with a predetermined time drift threshold and outputs a video frame skip signal if the difference value exceeds the predetermined time drift threshold and the difference value is negative and outputs a video frame repeat signal if the difference value exceeds the predetermined time drift threshold and the difference value is positive. The latency value is adjusted by adding a predetermined value to the latency

value stored in the latency value register if a video frame repeat signal is generated by the comparator. The latency value is adjusted by subtracting a predetermined value from the latency value stored in the latency value register if a video frame skip signal is generated by the comparator”).

Regarding claim 12, Daum discloses an apparatus and method for controlling a display time point of an MPEG bit stream of a recording medium wherein, upon receipt of the presentation time stamp from the PTS controller, the counter sets the presentation time stamp as an initial value, and receives the system clock frequency from the oscillator, counts it, and outputs the STC (Col 8, lines 63-66 “Upon the occurrence of the APTS 312, the counter 411 adds a number of SCLK clock cycles corresponding to a stored latency value M 313” and Col 10, lines 59-60 “the counter output 405 reflects the computation of $[APTS+M]$ ”).

Regarding claim 13, Daum discloses a method for controlling a display time point of an MPEG bit stream of a recording medium wherein, in the normal decoding operation, the stored presentation time stamp is updated with a presentation time stamp of a decoded or a skipped picture (Col 10, lines 56-63 “As the STC counter 411 is incremented, the value for M may be being generated. Upon reaching a VPTS, the generation of M for the detected VPTS may be completed and the counter output 405 reflects the computation of $(APTS+M)$. When a VPTS is detected within the encoded/compressed data stream, the register 412 may be loaded with the binary value representing the detected VPTS at register input 403).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daum.

Regarding claim 11, Daum suggests outputting a display signal when the STC and PTS are within a preset value of each other (Col 4, lines 40-44 "The comparator may compare the difference value with a predetermined time drift threshold and output a single video frame repeat signal if the difference value exceeds the predetermined time drift threshold by a first predetermined amount and the difference value is positive"), but does not explicitly disclose an apparatus for controlling a display time point of an MPEG bit stream of a recording medium wherein the comparator outputs a display command signal when the system time clock (STC) and the presentation time stamp (PTS) of the predetermined time picture are identical to each other.

The examiner takes official notice that the outputting of a display command when conditions are proper for display is well known and widely used, allowing a player to either present a currently decoded image, a previously stored image, or mute the output as required by circumstances.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Daum in order to output a command to display the currently decoded image at the appropriate time.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daum as applied to claims above, and further in view of Watkinson.

Regarding claim 14, Daum discloses that frames may be presented without a PTS (Col 3, lines 19-21 "The MPEG standard may require that a APTS, VPTS, and SCR show up in the bitstream at least once every seven tenths [0/7] of a second"), but do not specifically disclose generation of PTSs from PTS data of nearby images.

Watkinson teaches a method for controlling a display time point of an MPEG bit stream of a recording medium wherein, the step of the normal decoding operation comprising a step of obtaining a PTS by adding the number of frames which performed the special decoding to the PTS of the previous picture, in case that the currently inputted picture does not have a PTS (Page 224 "In practice the time between input pictures is constant and so there is a certain amount of redundancy in the time stamps. Consequently, PTS/DTS need not appear in every PES packet. Time stamps can be up to 700 milliseconds apart in program streams and up to 100 milliseconds apart in transport streams. As each picture type (I, P, or B) is flagged in the bitstream, the decoder can infer the PTS/DTS for every picture from the ones actually transmitted").

As suggested by Daum and taught by Watkinson, deriving a PTS for an image that does not have one is well-known, and provides the advantage of reducing the total amount of data stored or transmitted to the decoder.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Daum to include derivation of PTS for frames that do not have them.

7. Claims 1-4, 6-9, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daum, in further view of Watkinson.

Regarding claim 1, Daum discloses a method and apparatus for controlling a display time point of an MPEG bit stream of a recording medium comprising:

- an oscillator configured to generate a system clock frequency (Col 3, lines 26-27 "a 90 kilohertz system clock [SCLK]");
- a counter initialized according to a system clock reference [SCR] and configured to receive the system clock frequency from the crystal oscillator, count it and output a system time clock [STC] in a normal decoding mode (Col 3, lines 25-27 "The SCR was loaded into a counter, referred to as the system counter, and incremented by a 90 kilohertz system clock [SCLK]");
- a presentation time stamp [PTS] controller configured to receive and store a presentation time stamp of a predetermined picture in a special decoding mode, and output the stored presentation time stamp as an initial value of the counter when the apparatus returns to a normal mode (Col 22, lines 37 "When step control is activated, the clock input to STC counter may be interrupted and thus the output of STC counter may remain the start count received from CPU 820"); and
- a comparator configured to receive the system time clock from the counter and a presentation time stamp of a predetermined picture, compare them and output a display command signal in the case that the system time clock and the presentation time stamp of a predetermined picture are identical to each

other upon comparison (Col 4, lines 10-16 "A comparator coupled to the subtracter compares the difference value with a predetermined time drift threshold and outputs a video frame skip signal if the difference value exceeds the pre-determined time drift threshold and the difference value is negative and outputs a video frame repeat signal if the difference value exceeds the predetermined time drift threshold and the difference value is positive. The latency value is adjusted by adding a predetermined value to the latency value stored in the latency value register if a video frame repeat signal is generated by the comparator. The latency value is adjusted by subtracting a predetermined value from the latency value stored in the latency value register if a video frame skip signal is generated by the comparator").

Daum does not specifically disclose his system clock as being based on a crystal oscillator.

Watkinson teaches the use of a crystal oscillator as the system clock in an MPEG decoder (page 227, "The NLL contains a 27MHz VCXO [Voltage Controlled Crystal Oscillator], a variable-frequency oscillator based on a crystal which has a relatively small frequency range").

As taught by Watkinson, crystal oscillators are well known, widely used, and commercially available means of generating accurate, stable, inexpensive reference frequencies for a variety of electronic components, including timepieces, processors, counters, and the like.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Moon et al to specify a crystal oscillator as the generator of the system clock frequency.

Regarding claim 2, Daum discloses an apparatus for controlling a display time point of an MPEG bit stream of a recording medium wherein the special encoding mode includes a pause mode and a fast winding mode (Col 22, lines 1-2 "In order to freeze the video frame in step mode, the output of 90 Khz clock 401 may be suppressed by AND gate 870").

Regarding claim 3, Daum discloses an apparatus for controlling a display time point of an MPEG bit stream of a recording medium wherein the special decoding mode includes a slow motion mode in which, after a predetermined picture is decoded, the predetermined picture is repeatedly displayed to thereby slow the decoding operation (Col 22, lines 21-23 "In operation, step control may be activated through CPU 820, through, for example, a graphical user interface [e.g., 'step', 'pause' or 'jog' icon]" and Col 22, lines 1-2 "In order to freeze the video frame in step mode, the output of 90 Khz clock 401 may be suppressed by AND gate 870" and Col 4, lines 44-48 "The comparator may further output a multiple video frame repeat signal").

Regarding claim 4, Daum discloses an apparatus for controlling a display time point of an MPEG bit stream of a recording medium wherein, in the case of the pause mode, the time point at which a user inputs a pause command is a display time point of a screen (Col 22, lines 1-2 "In order to freeze the video frame in step mode, the output of 90 Khz clock 401 may be suppressed by AND gate 870").

Regarding claim 6, Daum suggests outputting a display signal when the system time clock and presentation time stamp are within a preset value of each other (Col 4, lines 40-44 "The comparator may compare the difference value with a predetermined time drift threshold and output a single video frame repeat signal if the difference value exceeds the predetermined time drift threshold by a first predetermined amount and the difference value is positive"), but does not explicitly disclose an apparatus for controlling a display time point of an MPEG bit stream of a recording medium wherein the comparator outputs a display command signal when the system time clock (STC) and the presentation time stamp (PTS) of the predetermined time picture are identical to each other.

The examiner takes official notice that the outputting of a display command when conditions are proper for display is well known and widely used, allowing a player to either present a currently decoded image, a previously stored image, or mute the output as required by circumstances.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Daum in order to output a command to display the currently decoded image at the appropriate time.

Regarding claim 7, Daum discloses an apparatus for controlling a display time point of an MPEG bit stream of a recording medium wherein, in the case that the system time clock and the presentation time stamp of the predetermined picture are not identical to each other, the comparator repeatedly performs comparing operation to compare the system time clock and the presentation time stamp of the predetermined

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picture while increasing the system time clock, until they are identical to each other (Col 10, lines 56-66 "As the STC counter 411 is incremented, the value for M may be being generated. Upon reaching a VPTS, the generation of M for the detected VPTS may be completed and the counter output 405 reflects the computation of $(APTS+M)$. When a VPTS is detected within the encoded/compressed data stream, the register 412 may be loaded with the binary value representing the detected VPTS at register input 403. The subtracter 413 computes $(APTS+M)-VPTS$ from the value of $(APTS+M)$ at subtracter input 405 and the value of VPTS at subtracter input 406.").

Regarding claim 8, Daum discloses an apparatus for controlling a display time point of an MPEG bit stream of a recording medium wherein, in the special decoding mode, the PTS controller stores the presentation time stamp of a picture being currently input, and then updates the stored presentation time stamp with a presentation time stamp of a decoded or a skipped picture while performing the decoding command (Col 12, lines 22-24 "when a VPTS may be detected within the encoded/compressed data stream, the STC counter 411 may be set and loaded with a binary value representing the detected VPTS at counter input 403").

Regarding claim 9, Daum discloses an apparatus and method for controlling a display time point of an MPEG bit stream of a recording medium wherein, upon receipt of the presentation time stamp from the PTS controller, the counter sets the presentation time stamp as an initial value, and receives the system clock frequency from the oscillator, counts it, and outputs the system time clock (Col 8, lines 63-66 "Upon the occurrence of the APTS 312, the counter 411 adds a number of SCLK clock

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cycles corresponding to a stored latency value M 313" and Col 10, lines 59-60 "the counter output 405 reflects the computation of [APTS+M]").

Regarding claim 15, Daum discloses a clock frequency of 900 KHz to illustrate the decoding of MPEG 1 data, notes that other decoding methods exist (Col 2, lines 12-14 "When using a compression/encoding method such as MPEG I, MPEG II, or JPEG, the data packets are encoded appropriately"), but does not specifically disclose a clock frequency of 27MHz.

Watkinson teaches that MPEG2 decoding is based on a system clock frequency of 27MHz (page 227, "The NLL contains a 27MHz VCXO [Voltage Controlled Crystal Oscillator], a variable-frequency oscillator based on a crystal which has a relatively small frequency range"), providing the additional image and audio quality that the more advanced encoding and decoding method provides.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Daum in order to have a system clock frequency of 27MHz.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daum and Watkinson as applied to claims above, and further in view of Lane (5,793,927).

Regarding claim 5, Daum suggests displaying a P or I frame as it is decoded (Col 3, lines 34-36 "In some decoding systems, a video clock or decoding clock may be generated without reference to the SCR and it may not be locked...")

Lane teaches an apparatus for controlling a display time point of an MPEG bit stream of a recording medium wherein, in case of a fast winding, when a 'P' frame or an

'I' frame is detected during analyzing the MPEG bit stream, a time point at which decoding of the 'P' frame or the 'I' frame is ended becomes the display time point (Col 6, lines 13-18 "To prevent decoder buffer underflow, the bitstream corrector circuit 220...stores the trick play frame data until it has the data corresponding to a full frame. The bitstream corrector circuit 220 then outputs this data to the decoder several times").

As suggested by Daum and taught by Lane, in a fast-forward trick play mode, buffer underflow is a concern and is readily corrected by outputting the frame data as soon as it is decoded.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Daum to display frames in fast-forward trick play mode as soon as they are available.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

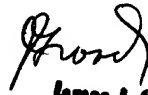
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Fletcher whose telephone number is (571) 272-7377. The examiner can normally be reached on 7:45-5:45 M-Th, first Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Groody can be reached on (571) 272-7950. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAF
4 October 2005


James J. Groody
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Art Unit 26202616